CONVERSION FACTORS, SELECTED TERMS AND SYMBOLS, CHEMICAL SYMBOLS AND FORMULAS, AND ABBREVIATIONS

CONVERSION FACTORS

Multiply	By	To obtain
millimeter (mm)	0.03937	inch (in.)
centimeter (cm)	0.3937	inch
square centimeter (cm^2)	0.155	square inch (in^2)
meter (m)	3.281	foot
micrometer (µm)	3.3×10^{-6}	foot (ft)
kilometer (km)	0.6214	mile
square meter (m^2)	10.7639	square foot (ft^2)
square kilometer (km^2)	0.3861	square mile
cubic meter per second (cm^3/s)	35.31	cubic foot per second (ft^3/s)
liter (L)	0.264	gallon (gal)
milliliter (mL)	0.0338 2.64×10^{-4}	ounce, fluid gallon
gram (g)	0.03527	ounce, avoirdupois
milligram (mg)	35.27×10^{-5}	ounce, avoirdupois
microgram (µg)	3.52×10^{-8}	ounce, avoirdupois
nanogram (ng)	3.52×10^{-11}	ounce, avoirdupois

Temperature: Water and air temperature are given in degrees Celsius (°C), which can be converted to degrees Fahrenheit (°F) by use of the following equation: $°F = 1.8\ (°C) + 32$

Use the following equation to convert temperature from degrees Celsius to degrees Kelvin (K): $0°C = 273.150\ K$

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

SELECTED TERMS AND SYMBOLS

*The definitions identified with an asterisk were adopted by the Water Resources Division of the U.S. Geological Survey in Water Resources Division Memorandum 91.09.

***accuracy**: The extent to which the measured value of a quantity agrees with the accepted value for that quantity.

approximately: ~

approximately equal to: ≃

***bias**: Systematic error that is manifested as a consistent positive or negative deviation from the known or true value. It differs from random error, which shows no such deviation.

dissolved constituent: A solute in a water sample—often operationally defined by the method and media properties used to separate the aqueous solutes from the particulate or colloidal phase.

District: A water-data-collecting organizational unit of the USGS located in any of the states or territories of the United States of America.

filtered sample: A sample passed through a commercial filter membrane of identified media, diameter, and pore size.

Formazin turbidity unit (FTU): (See Nephelometric turbidity unit).

gpm: gallons per minute

greater than: >

greater than or equal to: ≥

less than: <

less than or equal to: ≤

method detection limit (MDL): The minimum concentration of a substance that can be identified, measured, and reported with 99-percent confidence that the analyte concentration is greater than zero; determined from analysis of a sample in a given matrix containing analyte.

micrometer (μm): The millionth part of the meter; the pore diameter of filter membranes is given in micrometer units.

micromoles per liter (µmoles/L): A solution having a concentration of one million moles of a substance per liter solution (micromolar solution). A mole of substance is its atomic or molecular weight in grams.

µS/cm: microsiemens per centimeter at 25 degrees Celsius.

milliequivalents per liter (meq/L) or microequivalents per liter (µeq/L): One equivalent per liter is equal to one thousand milligram-equivalents per one thousand milliliters (meq/mL). Chemical analyses of solutes in a sample are expressed in unit concentrations that are chemically equivalent in terms of atomic or molecular weight and electrical charge.

milligrams per liter (mg/L) or micrograms per liter (µg/L): Milligrams per liter is a unit expressing the concentration of chemical constituents in solution as weight (milligrams) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter. For concentrations less than 7,000 mg/L, the numerical value is the same as for concentrations in parts per million.

millivolt (mV): A unit of electromotive force equal to one thousandth of a volt.

min: minute

minimum reporting level (MRL): The smallest measured concentration of a constituent that may be reliably reported using a given analytical method. In many cases, the MRL is used when documentation for the method detection limit is not available.

molal (m): Moles per kilogram (1,000 grams) of solvent.

molar (*M*): Concentration in moles per liter of solution, where one mole of a substance is its formula weight expressed in grams.

nanometer (nm): The millionth part of a millimeter.

Nephelometric turbidity unit (NTU): A measure of turbidity in a water sample, roughly equivalent to Formazin turbidity unit (FTU) and Jackson turbidity unit (JTU).

normality (*N*): The number of equivalents of acid, base, or redox-active species per liter (equivalents/L) of solution. Examples: a solution that is 0.01 *F* in HCl is 0.01 *N* in H^+. A solution that is 0.01 *F* in H_2SO_4 is 0.02 *N* in acid. Formality (*F*) is the number of atomic (formula) weights per 1,000 grams of solution.

plus or minus: ±

***precision**: The degree of similarity among independent measurements of the same quantity, without reference to the known or true value. It often is presented as the inverse of the standard deviation.

***quality assurance (QA)**: All those planned or systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality.

***quality control (QC)**: The operational techniques and the activities used to fulfill requirements of quality.

recommended (recommend, recommended, recommendation): Pertains to USGS protocols and indicates that USGS Office of Water Quality policy recognizes that one or several alternatives to a given procedure or equipment selection are acceptable on the basis of research and (or) consensus. Specific data-quality requirements, study objectives, or other constraints may affect the choice of recommended equipment or procedures. The recommended equipment or procedures selected must be documented and can be based on referenced research and good field judgment. Departure from or modifications to recommended procedures must be quality assured and documented.

required (require, required, requirements): Pertains to USGS protocols and indicates that USGS Office of Water Quality policy has been established on the basis of research and (or) consensus of the technical staff and reviewed by water-quality specialists and selected District personnel. Departure from or modifications to the stipulated requirements that might be necessary to accomplishing specific data-quality requirements or study objectives must be quality assured and documented.

specific electrical conductance (conductivity) (SC): Conductivity of water is expressed in microsiemens per centimeter at 25 degrees Celsius (µS/cm). This unit is equivalent to micromhos per centimeter at 25 degrees Celsius (µmho/cm), formerly used by the U.S. Geological Survey.

unfiltered sample: Sometimes referred to as a wholewater or raw sample—pertains to a water sample collected for subsequent chemical or physical analysis without undergoing a phase-separation procedure.

CHEMICAL SYMBOLS AND FORMULAS

$CaCO_3$	calcium carbonate
CO_2	carbon dioxide
CO_3^{2-}	carbonate ion
H^+	hydrogen ion
H_2SO_4	sulfuric acid
HCl	hydrochloric acid or hydrogen chloride
HCO_3^-	bicarbonate ion
Hg	mercury
HNO_3	nitric acid
$K_4Fe(CN)_6 \cdot 3H_20$	potassium ferrocyanide
$K_3Fe(CN)_6$	potassium ferricyanide
KCl	potassium chloride
Na_2CO_3	sodium carbonate
NaOH	sodium hydroxide
OH^-	hydroxide ion

ABBREVIATIONS

ALK	alkalinity
ANC	acid neutralizing capacity
ASTM	American Society for Testing and Materials
ATC	automatic temperature compensator
BNC	bayonet nut connector
DIW	deionized water
DO	dissolved oxygen
EDI	equal-discharge increment
EDTA	ethylene diaminetetracetic acid
emf	electromotive force
EWI	equal-width increment
FTU	Formazin turbidity unit
HIF	Hydrologic Instrumentation Facility
IPT	inflection-point titration

ISO	International Standards Organization
LS	land surface
MP	measuring point (for water level measurements)
MSDS	Material Safety Data Sheets
N	normal
NASQAN	National Stream Quality Accounting Network
NAWQA	National Water-Quality Assessment Program
NFM	*National Field Manual for the Collection of Water-Quality Data*
NIST	National Institute of Standards and Technology
NTU	Nephelometric turbidity unit
NWIS	National Water Information System of the USGS
NWQL	National Water Quality Laboratory of the USGS
OWQ	Office of Water Quality of the USGS
PAO	phenylarsine oxide
PTFE	polytetrafluoroethylene polymer (a variety of Teflon™)
QA	quality assurance
QC	quality control
QW	quality of water, or water quality
QWDATA	Water-Quality Data Processing Routine (part of the USGS NWIS system)
QWSU	Quality of Water Service Unit, USGS, Ocala, Florida
redox	reduction-oxidation potential (also referred to as oxidation-reduction potential, or ORP)
SC	specific electrical conductance (conductivity)
STORET	Storage and Retrieval (USEPA Water-Quality Data Management System)

T	temperature
TBY	turbidity
TC	to contain
TD	to deliver
TWRI	Techniques of Water-Resources Investigations
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WRD	Water Resources Division of the U.S. Geological Survey
YSI	Yellow Springs Instrument Company